

DOCUMENT RESUME

ED 351 315

SP 034 149

AUTHOR Hollingsworth, Sandra
 TITLE Teachers as Researchers: A Review of the Literature.
 INSTITUTION Occasional Paper No. 142.
 Michigan State Univ., East Lansing. Inst. for
 Research on Teaching.
 SPONS AGENCY Department of Education, Washington, DC.
 PUB DATE Aug 92
 NOTE 15p.
 AVAILABLE FROM Institute for Research on Teaching, College of
 Education, Michigan State University, 252 Erickson
 Hall, East Lansing, MI 48824-1034 (\$2).
 PUB TYPE Information Analyses (070)
 EDRS PRICE MF01/PC01 Plus Postage.
 DESCRIPTORS *Action Research; Change Agents; *Criticism;
 Curriculum Development; *Curriculum Research;
 *Educational Change; Elementary Secondary Education;
 Higher Education; Literature Reviews; Social Change;
 *Teacher Role; Theory Practice Relationship
 IDENTIFIERS Self Empowerment; *Teacher Researchers

ABSTRACT

This article summarizes the breadth, diversity, and significance of the international movement to recognize, prepare, and learn from teachers as researchers from three interrelated standpoints: curriculum improvement, professional critique, and societal reform. A derivative of action research, teacher research from a curriculum improvement stance seeks to improve practice in social settings by trying out curricular ideas as both a means of increasing knowledge of the situation and improving it. Teacher research from the standpoint of professional critique intends to improve the structures and social conditions of practice. The focus of teachers as researchers relative to societal reform is on how schools and teaching are shaped in society and what epistemological views are important for their transformation. The cumulative effect of this work has been to influence the manner in which teachers are perceived as professional curriculum developers and agents of social change. It has also influenced current collaborative research models and school restructuring plans which emphasize "teacher empowerment." Finally, this review suggests that the concept of teachers as researchers is at the center of international attention to reform in wide areas across the educational enterprise: research, teaching, the profession, its moral purpose, and its impact on societies. Forty selected references complete the document. (Author)

 * Reproductions supplied by EDRS are the best that can be made *
 * from the original document. *

ED351315

IRT
price
\$2.00

Occasional Paper No. 142

TEACHERS AS RESEARCHERS:
A REVIEW OF THE LITERATURE

Sandra Hollingsworth

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

P. Peterson

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

- This document has been reproduced as received from the person or organization originating it
- Minor changes have been made to improve reproduction quality

- Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

BEST COPY AVAILABLE

Occasional Paper No. 142

TEACHERS AS RESEARCHERS:
A REVIEW OF THE LITERATURE

Sandra Hollingsworth

Published by

The Institute for Research on Teaching
College of Education
Michigan State University
East Lansing, Michigan 48824-1034

August 1992

This work is sponsored in part by the Institute for Research on Teaching, College of Education, Michigan State University. The Institute for Research on Teaching is funded from a variety of federal, state, and private sources including the United States Department of Education and Michigan State University. The opinions expressed in this publication do not necessarily reflect the position, policy, or endorsement of the funding agencies.

Institute for Research on Teaching

The Institute for Research on Teaching was founded in 1976 at Michigan State University and has been the recipient of major federal grants. Funding for IRT projects is currently received from the U.S. Department of Education, Michigan State University, and other agencies and foundations. IRT scholars have conducted major research projects aimed at improving classroom teaching, including studies of classroom management strategies, student socialization, the diagnosis and remediation of reading difficulties, and school policies. IRT researchers have also been examining the teaching of specific school subjects such as reading, writing, general mathematics, and science and are seeking to understand how factors inside as well as outside the classroom affect teachers. In addition to curriculum and instructional specialists in school subjects, researchers from such diverse disciplines as educational psychology, anthropology, sociology, history, economics, and philosophy cooperate in conducting IRT research. By focusing on how teachers respond to enduring problems of practice and by collaborating with practitioners, IRT researchers strive to produce new understandings to improve teaching and teacher education.

Currently, IRT researchers are engaged in a number of programmatic efforts in research on teaching that build on past work and extend the study of teaching in new directions such as the teaching of subject matter disciplines in elementary school, teaching in developing countries, and teaching special populations. New modes of teacher collaboration with schools and teachers' organizations are also being explored. The Center for the Learning and Teaching of Elementary Subjects, funded by the U.S. Department of Education's Office of Educational Research and Improvement from 1987-92, is one of the IRT's major endeavors and emphasizes the teaching of elementary mathematics, science, social studies, literature, and the arts for understanding, appreciation, and use. The focus is on what content should be taught, how teachers concentrate their teaching to use their limited resources in the best way, and in what ways good teaching is subject-matter specific.

The IRT publishes research reports, occasional papers, conference proceedings, the Elementary Subjects Center Series, a newsletter for practitioners (IRT Communication Quarterly), and lists and catalogs of IRT publications. For more information, to receive a list or catalog, and/or to be placed on the IRT mailing list to receive the newsletter, please write to the Editor, Institute for Research on Teaching, 252 Erickson Hall, Michigan State University, East Lansing, Michigan 48824-1034.

Co-directors: Jere E. Brophy and Penelope L. Peterson

Senior Researchers: Janet Alleman, Tane Akamatsu, Charles Anderson, Linda Anderson, Betsy Becker, Margaret Buchmann, Patricia Cianciolo, Gerald Duffy, Carol Sue Engiert, James Gallagher, James Gavelek, Sandra Hollingsworth, Magdalene Lampert, Perry Lanier, Wanda May, Annemarie Palincsar, Richard Prawat, Ralph Putnam, Taffy Raphael, Stephen Raudenbush, Laura Roehler, Cheryl Rosaen, Kathleen Roth, Pamela Schram, John Schwille, David Stewart, M. Teresa Tatto, Mun Tsang, Christopher Wheeler, Suzanne Wilson

Editor: Sandra Gross

Editorial Assistant: Tom Bowden

Abstract

This article summarizes the breadth, diversity, and significance of the international movement to recognize, prepare, and learn from teachers as researchers across three interrelated standpoints: curriculum improvement, professional critique, and societal reform. A derivative of action research, teacher research from a *curriculum improvement* stance seeks to improve practice in social settings by trying out curricular ideas as both a means of increasing knowledge of the situation and improving it. Teacher research from the standpoint of *professional critique* intends to improve the structures and social conditions of practice. The focus of teachers as researchers relative to *societal reform* is on how schools and teaching are shaped in society and what epistemological views are important for their transformation.

The cumulative effect of this work has been to influence the manner in which teachers are perceived as professional curriculum developers and agents of social change. It has also influenced current collaborative research models and school restructuring plans which emphasize "teacher empowerment." Finally, this review suggests that the concept of teachers as researchers is at the center of international attention to reform in wide areas across the educational enterprise: research, teaching, the profession, its moral purpose, its impact on societies.

Teachers as Researchers: A Review of the Literature¹

Sandra Hollingsworth²

The international movement to recognize, prepare, and learn from teachers as researchers has come of age in the years since John Elliott's summary in the first volume of the *International Encyclopedia of Education*. The current article, written from the perspective of a Caucasian, female, teacher educator in the United States, summarizes the breadth, diversity, and significance of the teacher-research movement across three interrelated standpoints: curriculum improvement, professional critique, and societal reform. Since all teacher researchers are concerned with action to improve their practices, change the situations in which they work, and understand their practices within the larger society, this arrangement is not intended to be linear or hierarchical. The discussion, instead, is framed in terms of different organizing foci which generate the action. A limitation of this overview is its brevity. Notwithstanding attempts to include examples of teacher research across stances, obviously many excellent sources could not be included because of page-limit restrictions. (Complete citations are available upon request from the author.)

Curriculum/Practice Improvement

This stance on teacher-research seeks to improve practice in social settings by trying out curricular ideas as both a means of increasing knowledge of the situation and improving it. Curriculum research derives from what was known as *action research*, which led to *teachers as researchers* in the *process model*. Finally, the work produced both immediate curriculum changes by teachers (*first-order* research) and observations about teacher research from collaborating academics (*second-order* research).

¹This paper will be an entry in the forthcoming *International Encyclopedia of Education* (2nd ed.), edited by T. Husen and T.N. Poslethwaite (Oxford, England: Pergamon Press).

²Sandra Hollingsworth, assistant professor of teacher education at Michigan State University, is a senior researcher in the Institute for Research on Teaching working on the Students' Response to Literature Instruction Project.

Action Research

The concept of using experimental social science to investigate various programs of social action was popularized by social psychologist Kurt Lewin (1946) in post-World-War II America. Stephen Corey (1955) then adapted the concept to improve *school* practices in the United States. Corey's faculty colleagues at Teachers College of Columbia University, worked cooperatively with public school personnel on curriculum projects in action. In the post-Sputnik climate of the late 1950s, however, primary funding went to curriculum projects which followed traditional research, development, and dissemination models. Action research, suspect as "unscientific" in such a climate, became "interactive R & D," disseminating research results through inservice teacher training (Ward and Tikunoff, 1982). Much of that federally funded work, however, supported regular seminars where teachers were encouraged to investigate topics related to their practices. It was the curriculum reform movement in the United Kingdom, however, which first popularized teachers as researchers.

Teachers as Researchers

Lawrence Stenhouse (1983) is credited with developing the concept of teachers as researchers at the University of East Anglia. As director of the Schools Council Humanities Project, Stenhouse came to see teachers' authority and autonomy as a basis for curriculum improvement and innovation. Like Corey, Stenhouse used the scientific method of developing and testing curricular hypotheses but felt that its use to develop replicable results across classrooms was limited; he also questioned the ethical stance of separating the performance from the performer. Stenhouse thus rejected the "objectives model" of curriculum adoption (Tyler, 1949) and asked teachers to engage in a "process model" of curriculum innovation where professional and curricular development became the same enterprise.

Developing the Process Model

Three factors made action research in the process model a viable alternative in the late 1970s and 1980s: (a) the difficulties of disseminating quantitative, experimental methodologies to local and social educational settings, (b) an increasing acceptance of the concept of curriculum as

integrated with deliberation (Schwab, 1973), and (c) a professional and political reaction to the post-Sputnik accountability stance for improving and changing curriculum. John Elliott, a colleague of Stenhouse, emphasized the interpretive-hermeneutic nature of inquiry in this work. Elliott (1991) sees action research as a pedagogical paradigm--a form of teaching. He argues that educational research should be modeled after action research--"a moral science paradigm to which teacher researchers would be the main contributors, rather than those in academic disciplines" (quoted in McKernan, 1991, p. 23).

First- and Second-Order Research

While actual change-in-action is the primary product or first order of curriculum/practice improvement teacher research, first-order changes are also described in reports of the process written by teachers themselves (Philadelphia Teachers' Learning Collaborative, 1984), in descriptions of university level teachers' research on their curricular practices (Lancpert, 1989), and in coauthored texts detailing the action of teacher-researchers and academics (Clandinin, Davies, Hogan, & Kennard, in press). Published examples of second-order discussions *about* teacher research are found in outlines of skills needed by teacher researchers (Hopkins, 1985), in discussions of teacher-researchers' cognitive development (Oja and Smulyan, 1989), in descriptions of teacher networks (Smith, Wiggington, Hocking, and Jones, 1991) and teacher research/union collaboratives (Naylor and Coplin, 1992), and in understandings gained from teacher-university collectives (Carini, 1988).

Impact on Curriculum/Practice Improvement

The cumulative effect of this work has changed the manner in which teachers are perceived as professional curriculum developers. It has also influenced current collaborative research models and school restructuring plans which emphasize "teacher empowerment." One of the best examples of curriculum-based teacher research which improved practice and then led to theoretical, professional and structural change is noted in the Bay Area Writing Project. Reports from BAWP extensions across the United States range from first-order summaries (Fecho, 1992) to second-order analyses of project participants' ideological differences (Schecter, 1992).

Professional/Structural Critique

Emerging in the 1980s from the success of curriculum improvement research in the United Kingdom and the United States was another stance centered on improving social environments or conditions of practice through *structural* and *professional critique*.

Structural Critique

Stephen Kemmis and his colleagues at Deakin University in Australia and elsewhere have articulated a model of a critical educational science. They write: "New ideas are not enough to generate better education. Educational practices and patterns of school and classroom organization must also be changed to secure improvement" (Kemmis & McTaggart, 1988, p. 34).

The critical stance of teachers as researchers focusing on desired and possible changes in the educational structures has also been recently noted within the United Kingdom and other countries. Helen Simons (1992) of the University of Southampton has argued for collaborative partnerships in the teacher-research movement which take into account the practice-oriented views of the curriculum researcher and the structural views of the critical researcher. She points out that reforming schools from the outside cannot work--neither can simple calls for collaboration. The fact that existing structures privilege privacy, hierarchy, and territory within the institution and across collaborative boundaries suggests that structural and professional relationships must change.

Critiques of Professionalism and Professionalization

In the United Kingdom and, more recently, in the United States, Hugh Sockett (1989) has drawn educational scholars' attention to both the need for professionalism in teaching and the professionalization or socialization process by which one becomes a professional. Teacher research is an important part of both processes. Peter Posch (1992) in Austria also speaks to the importance of teacher research for the profession. Posch argues that teacher professionalism involves teacher research on student professionalism.

Preparing students and experienced teachers as critical professionals to challenge and change workplace conditions as well as the curriculum is an important part of a professional/

structural critique (Cochran-Smith, 1991; Crouse & Ritchie, 1992). Feminists involved in teacher education help teachers to develop radical pedagogies or "styles of teaching which help make visible to pupils the structural social inequities which constrain their lives" (Middleton, 1992, p. 18).

Impact on the Workplace and the Profession

Although the preparation of teachers as critical inquirers is not yet widespread, structural and professional changes influenced by this work have been widely noted in new policies for school and professional restructuring. In the United States, California's decision to retain and reshape the state-sponsored mentoring project followed teacher-research investigations into its possibilities and limitations (see Ashton et al., 1990).

Many of the transformative results from the critical professional/structural stance, however, have been far less public and far more personal. The Boston Women's Teachers Group (Freedman, Jackson, & Boles, 1983), for example, met for three years to cope with the isolated struggle of their daily work and to study how their work conditions affected them as teachers. Like other groups who have created similar structures (see Miller, 1990), their professional work was critical rather than curricular: They focused on the creation of conditions under which participants could consider their own interests and develop curriculum innovations.

Societal/Emancipatory Reform

The focus of teachers as researchers in the emancipatory stance is on how schools and teaching are shaped in society, and on what epistemological views are important for their transformation. In some Western industrialized countries, the societal focus came with an awareness of the increasing gap between the concept of democracy and the reality of domination and oppression. Reflexively fueled by the Civil Rights and Women's Movements in the United States, even popular teacher-promoted curricular projects challenging static views of knowledge and societal norms were not free from scrutiny (see, for example, Lisa Delpit's, 1986, critique of the Bay Area Writing Process Model). Two broad areas of societal/emancipatory reform are reviewed here: *epistemological critique* and *the problematization of gender*.

Epistemological Critique

This stance on teachers as researchers developed simultaneously with philosophical critiques of societal positions based on privileged conceptions of knowledge. Jerome Bruner (1985), for example, questions the power ascribed the paradigmatic or "rational" view of knowledge and argues for the power of its antitheses, a narrative view of knowledge. Sandra Harding (1991) questions natural science's position on objectivity as too protective of the power-dominant white, male society. Mary Belenky, Blythe Clinchy, Nancy Goldberg, and Jill Tarule (1986) raise questions about alternative ways of knowing which could privilege some women over others. Audrey Lourde (1984) also critiques societally accepted knowledge and points out culturally diverse ways of knowing and representing knowledge. Finally, many critiques either implicitly or explicitly question the separation of hierarchically powered social structures and inquiry methods (Winter, 1987).

The Problematic of Gender

Kenneth Zeichner (1990) challenges the problematic social and epistemological hierarchy by speaking to the importance of teachers as women in the second professional wave of educational reform. Citing Michael Apple, Zeichner reminds us that "Teaching is not just work; it is gendered work" (p. 366). As Zeichner expresses hope for societal/emancipatory work in the recent press for teacher empowerment, he also offers caution. Zeichner points out that curricular reform missions could be undermined unless teacher research is incorporated into instead of added onto teachers' work.

For the author of this article, the teachers as researchers movement takes on a perspective of feminist praxis (see Hollingsworth, in press). A consciousness of teachers' problematic personal position within society (i.e., most U. S. teachers are women), an understanding of research, an appreciation of teachers' abilities to construct and critique knowledge, and the integration of those features in classroom teaching, suggests that teaching itself is research, and thus teachers are the researchers of educational and societal reform--a position Elliott (1991) had taken earlier from a curricular stance.

Gaby Weiner (1989) contrasts teacher research in the Schools Council Sex Differentiation Project with mainstream professional development (curricular teacher research). Rather than convince teachers of a need to change their practices, gender researchers in the United Kingdom wish to bring about improvements in the social and economic position of women. Similar research is being conducted in the United States (see McIntosh, Style and Tsugawa, 1992).

The Impact of Societal/Emancipatory Reform

Excellent examples of first-order research from the emancipatory reform stance are currently available (e.g., Goswami & Stillman, 1987, Newman, 1990). The publication of such work is indicative of the increasing involvement of teachers in emancipatory work. Further, not only are teacher researchers conducting their own professional meetings but they are also participating at national and international research conferences previously reserved for university researchers. The American Educational Research Association has registered a special interest group on teacher research since 1989. The National Research Center on Literature Teaching and Learning in the United States sponsored a Teacher Research Institute in 1992. These are but a few examples of how the teachers as researchers movement is generating in societal and emancipatory reform.

This review suggests that the concept of teachers as researchers is at the center of international attention to reform in all areas of the educational enterprise: research, teaching, the profession, its moral purpose, its impact on societies. Some might worry that the political implications of teacher empowerment and societal reform might lead us to a new and unknown world with unfamiliar epistemological and social norms. Others might be concerned that the growing popularity of the teachers as researchers movement will ensure that it becomes yet another form of power and hierarchy inside schools; becomes mandated, measured, and meaningless to actual improvement of practice; or simply becomes a new process for reproducing existing school structures and societal outcomes. The trends found in the literature fail to resolve any of those worries. What is clear is that the movement is part of the larger evolution of society into the post-information age--and that teachers as researchers are no longer marginally involved.

References

Ashton, D., Dowling, L., Srumbein, S., Rausch, D., Rounds, A., Sullivan, V., & Traveler, L. (1990). *Where do we go from here in the California Mentor Teacher Program? Recommendations by seven mentors*. Palo Alto, CA: Stanford/Schools Collaborative.

Belenky, M.F., Clinchy, B.M., Goldberg, N.R., & Tarule, J.M. (1986). *Women's ways of knowing: The development of self, voice, and mind*. New York: Basic Books.

Bruner, J.S. (1985). Narrative and paradigmatic modes of thought. In E. Eisner (Ed.), *Learning and teaching the ways of knowing* (84th yearbook of the National Society for the Study of Education, pp. 97-115). Chicago: University of Chicago Press.

Carini, P. (1988). *Prospect's documentary processes*. Unpublished manuscript, Bennington College, VT.

Clandinin, D.J., Davies, A., Hogan, P., & Kennard, B. (in press). *Learning to teach, teaching to learn: Stories of collaboration in teacher education*. New York: Teachers College Press.

Cochran-Smith, M. (1991). Learning to teach against the grain. *Harvard Educational Review*, 61, 279-310.

Corey, S. (1953). *Action research to improve school practices*. New York: Teachers College Press.

Crouse, M.R., & Ritchie, M.C. (1992, February). *An examination of student teacher-research and its application in first-year teaching*. Paper presented at the Ethnography in Education Research Forum, University of Pennsylvania, Philadelphia.

Delpit, L. (1986). Skills and other dilemmas of a progressive black educator. *Harvard Educational Review*, 56, 379-385.

Elliott, J. (1991). *Action research for educational change*. Milton Keynes, England: Open University Press.

Fecho, B. (1992, February). *The way they talk: An English teacher ponders his role*. Paper presented at the Ethnography in Education Research Forum, University of Pennsylvania, Philadelphia.

Freedman, S., Jackson, J., & Boles, K. (1983). Teaching: An imperilled "profession." In L. S. Shulman & G. Sykes (Eds.), *Handbook of teaching and policy* (pp. 261-299). New York: Longman.

Goswami, D., & Stillman, P. (1987). *Reclaiming the classroom: Teacher-research as an agency for change*. Upper Montclair, NJ: Boyton/Cook.

Harding, S. (1991). *Whose science? Whose knowledge? Thinking from women's lives*. Ithaca, NY: Cornell University Press.

Hollingsworth, S. (in press). Learning to teach literacy through collaborative conversation: A feminist approach. *American Educational Research Journal*.

Hopkins, D. (1985). *A teacher's guide to classroom research*. Milton Keynes, England: Open University Press.

Kemmis, S., & McTaggart, R. (1988). *The action research planner* (2nd ed.). Geelong, Australia: Deakin University Press.

Lampert, M. (1989). Research into practice: Arithmetic as problem solving. *Arithmetic Teacher*, 36, 7.

Lewin, K. (1946). Action research and minority problems. *Journal of Social Issues*, 2, 24-46.

Lourde, A. (1984). *Sister outsider*. Freedom, CA: Crossing Press.

McIntosh, P., Style, E., & Tsugawa, T. (1992). *Teacher as researcher*. National SEED [Seeking Educational Equity and Diversity]. Collection of unpublished papers, Wellesley College, Center for Research on Women, Wellesley, MA.

McKernan, J. (1991). *Curriculum action research: A handbook of methods and resources for the reflective practitioner*. New York: St. Martin's Press.

Middleton, S. (1992). Developing a radical pedagogy. Autobiography of a New Zealand sociologist of women's education. In I. F. Goodson (Ed.), *Studying teachers' lives* (pp. 18-50). New York: Teachers College Press.

Miller, J. L. (1990). *Creating space and finding voices: Teachers' collaborating for empowerment*. Albany, NY: SUNY Press.

Naylor, C., & Coplin, L. (1992). "Snap to it": *A teacher union/teacher researcher collaboration using photography*. Vancouver: British Columbia Teachers Federation.

Newman, J.D. (Ed.). (1990). *Finding our own way: Teachers exploring their assumptions*. Portsmouth, NH: Heinemann.

Oja, S.N., & Smulyan, L. (1989). *Collaborative action research: A developmental approach*.. London: Falmer Press.

Philadelphia Teachers Learning Cooperative. (1984). On becoming teacher experts: Buying time. *Language Arts*, 61, 731-736.

Posch, P. (1992, April). *Teacher-research and teacher professionalism*. Presentation at the International Conference on Teacher-Research, Stanford University, Palo Alto, CA.

Schechter, S.R. (1992, February). *Ideological divergences in teacher-research groups*. Paper presented at the Ethnography in Education Research Forum, University of Pennsylvania, Philadelphia.

Schwab, J. (1973). The practical 4: Something for curriculum professors to do. *Curriculum Inquiry*, 13, 239-265.

Simons, H. (1992, April). *Teacher-research and teacher professionalism*. Presentation at the International Conference on Teacher-Research, Stanford University, Palo Alto, CA.

Smith, H., Wigginton, E., Hocking, K., & Jones, R.E. (1991). Foxfire teacher networks. In A. Lieberman & L. Miller (Eds.), *Staff development for education in the '90s: New demands, new realities, new perspectives* (pp. 193-220). New York: Teachers College Press.

Sockett, H. (1989). Practical professionalism. In W. Carr (Ed.), *Quality in teaching* (pp. 115-133). New York: Falmer Press.

Stenhouse, L. (1983). Research as a basis for teaching [Inaugural lecture, University of East Anglia]. In L. Stenhouse (Ed.), *Authority, education and emancipation* (pp. 177-195). Portsmouth, NH: Heinemann.

Tyler, R. W. (1949). *Basic principles of curriculum and instruction*. Chicago: University of Chicago Press.

Ward, B., & Tikunoff, W. (1982, month). *Collaborative research*. Paper presented at the National Institute of Education Conference on the Implication of Research on Teaching for Practice, Washington, DC.

Weiner, G. (1989). Professional self-knowledge versus social justice: A critical analysis of the teacher-researcher movement. *British Educational Research Journal*, 15(1), 41-51.

Winter, R. (1987). *Action-research and the nature of social inquiry: Professional innovation and educational work*. Brookfield, VT: Gower.

Zeichner, K.M. (1990). Contradictions and tensions in the professionalization of teaching and the democratization of schools. *Teachers College Record*, 92, 363-379.